

# ADAPTIVE THERMAL CONTROL OF LITHOGRAPHIC CHEMICAL PROCESSES

## ABSTRACT

A system, apparatus, and method for thermally controlling lithographic chemical processes is disclosed herein. The thermal control system includes a multi-zone thermal sensing unit containing a plurality of thermal sensor elements. These thermal elements are configured to detect the temperature of a plurality of pre-defined zones on the substrates. The system also includes a multi-zone thermal adjustment unit that contains a plurality of thermal coupler elements, which are configured to adjust the temperature of the pre-defined zones. The system further includes a thermal controller unit, operatively and communicatively coupled to the multi-zone thermal sensing unit and the multi-zone thermal adjustment unit. The thermal controller unit receives the detected temperature from the multi-zone thermal sensing unit, processes the detected temperature information, generates temperature control information based on the processed temperature information, and communicates the temperature control information to the multi-zone thermal adjustment unit to adjust the temperatures of the pre-defined zones.